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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/512,402	06/20/2005	Young-Chan Moon	7272P001	4453

8791 7590 04/29/2008
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EXAMINER	
SIM, YONG H	

ART UNIT	PAPER NUMBER
2629	

MAIL DATE	DELIVERY MODE
04/29/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/512,402	Applicant(s) MOON ET AL.	
	Examiner YONG SIM	**Art Unit** 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3 and 5-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3 and 5-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/14/2008 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 3 and 5 – 11 have been considered but are moot in view of the new ground(s) of rejection.

At the outset, the Applicant is thanked for the thorough review and consideration of the Office Action dated 10/16/2007.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1, 3 and 6 – 11 are rejected under 35 U.S.C. 103(a) as being anticipated by Knee et al. (Hereinafter "Knee" US 5,994,710) in view of Fahraeus et al. (Hereinafter "Fahraeus" US 6,906,699 B1).

Re claim 1, Knee teaches an apparatus for implementing mouse function and scanner function alternatively (28 "a scanning mouse" Fig. 2C), the apparatus comprising: an input device for having a region capable of scanning (15 "underside of mouse" Fig. 2B; The mouse is capable of scanning, therefore the underside, which is a part of the mouse, is a region capable of scanning.) including a position tracing region for detecting a transition of position of said apparatus (20 "navigation mechanism/tracing region" Fig. 2B. Col. 6, lines 11 – 15; "detects motion by directly imaging a document or arbitrary work surface below the mouse."); and an image processor (44 "microprocessor" Fig. 3) for receiving an image data from said input device and storing if a predetermined amount of said image data is collected (Col. 6, lines 43 – 45; "The responses of the photo detectors/image data are digitized and <u>stored</u> as a frame into an array of memory."), the image processor reading out the

image data collected at said position tracing region and then detecting the transition of position of said apparatus [Col. 7, lines 1 – 4; “tracking/(tracing) is accomplished by comparing a newly captured sample frame/(image data) with a previously captured reference frame to ascertain the direction and amount of movement/(transition of position of apparatus).”], the image processor receiving user's selection with regard to any one of the mouse function or scanner function and transmitting corresponding information according to the selected function to the outside (Col. 13, lines 9 – 20; “the microprocessor’s/image processor function is to acquire/receive the data that correspond to the mode of operation/(user’s selection) of the scanning mouse and signal/(transmit corresponding information) the computer/outside. The switch determines whether the scanning mouse is operating a mouse or as a scanner.”), wherein said corresponding information is information with regard to the transition to X, Y axes (Col. 7, lines 24 – 25; “provides raw movement information scaled to provide display pointer movement information <u>(Δx and Δy)</u>.”) concerning the position of said apparatus if the user selected the mouse function (Col. 13, lines 21 – 23; “In the mouse mode, navigation data is sent to the mouse driver executing on the computer.”), and is information with regard to the transition to X, Y axes concerning the position of said apparatus and image data detected from the actual scanning region of said region capable of scanning if the user selected the scanner function [Col. 14, lines 35 – 40; “Fig. 4 illustrates in symbolic form that an image line can be formatted for transmission from interface to the computer. Each of format places navigation sensor data/(x, y axes information) at the first and last of the image line/image data detected.”], wherein said

position tracing region for detecting the transition of position among the region capable of scanning of said input device is positioned in a predetermined region of said region capable of scanning (See Fig. 2B. 20 navigation region/position tracing region is positioned in a predetermine region of the region capable of scanning/15 underside of mouse.).

But does not expressly teach wherein an image data is detected from whole of said region capable of scanning and wherein said position tracing region is an integral part of said region capable of scanning.

However, Fahraeus teaches an input unit means for providing with a mouse function and a scanning function based on a user selection wherein the scanning and position tracing region are integral and the image data is detected from whole of said region capable of scanning and tracing (Fahraeus: See Fig. 1. Col. 5, line 53 – Col. 2 line 29).

Therefore, taking the combined teachings of Knee and Fahraeus, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the idea of having an input unit for providing with a mouse function and a scanning function based on a user selection wherein the scanning and position tracing region are integral and the image data is detected from whole of said region capable of scanning and tracing as taught by Fahraeus into the apparatus for implementing mouse function and scanner function alternatively as taught by Knee to obtain an apparatus for implementing mouse function and scanner function alternatively wherein an image data is detected from whole of a region capable of scanning and wherein a position tracing

region is an integral part of said region capable of scanning in order to reduce complexity to have both tracing and scanning sensors within a housing and share one scanning region to allow miniaturization of the mouse.

Re claim 3, Knee teaches wherein said image processor includes a selection button (54 “switch/a third mouse button” Fig. 3) receiving input of user's selection with regard to any one of the mouse function or scanner function (Col. 13, lines 18 – 20; “The switch determines whether the scanning mouse is operating a mouse or as a scanner.”).

Re claim 6, Knee teaches further comprising a computer (“computer” Fig. 3) for receiving the corresponding information from said image processor (Col. 13, lines 9 – 20; “the microprocessor’s/image processor function is to acquire/receive the data that correspond to the mode of operation/(user’s selection) of the scanning mouse and signal/(transmit corresponding information) the computer.”) and moving pointer according to the information with regard to the transition of X, Y axes concerning the position of said apparatus (Col. 7, lines 24 – 25; “provides raw movement information scaled to provide display pointer movement information <u>(Δx and Δy)</u>.”).

Re claim 7, Knee teaches in an apparatus for implementing mouse function and scanner function alternatively, a method for implementing mouse function and scanner function alternatively, the method comprising: (a) receiving user's selection with regard

to any one of the mouse function or scanner function (Col. 13, lines 9 – 20; “the microprocessor’s/image processor function is to acquire/receive the data that correspond to the mode of operation/(user’s selection) of the scanning mouse and signal/(transmit corresponding information) the computer/outside. The switch determines whether the scanning mouse is operating a mouse or as a scanner.”); (b) detecting a transition to X and Y axes concerning the position of said apparatus (Col. 7, lines 24 – 25; “provides raw movement information scaled to provide display pointer movement information <u>(Δx and Δy)</u>.”); and (c) transmitting only the information with regard to the X and Y axes coordinate of the transition of position of said apparatus if said receipt of user's selection is the mouse function (Col. 13, lines 21 – 25; "In the mouse mode, navigation data is sent to the mouse driver executing on the computer. The image data from the image sensor is ignored.”), transmitting an image data detected from a region capable of scanning of said apparatus together with the information with regard to the transition to X and Y axes concerning the position of said apparatus if said receipt of user's selection is the scanner function [Col. 14, lines 35 – 40; “Fig. 4 illustrates in symbolic form that an image line can be formatted for transmission from interface to the computer. Each of format places navigation sensor data/(x, y axes information) at the first and last of the image line/image data detected.”].

But does not expressly teach wherein an image data is detected from whole of said region capable of scanning and wherein said position tracing region is an integral part of said region capable of scanning.

However, Fahraeus teaches an input unit means for providing with a mouse function and a scanning function based on a user selection wherein the scanning and position tracing region are integral and the image data is detected from whole of said region capable of scanning and tracing (Fahraeus: See Fig. 1. Col. 5, line 53 – Col. 2 line 29).

Therefore, taking the combined teachings of Knee and Fahraeus, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the idea of having an input unit for providing with a mouse function and a scanning function based on a user selection wherein the scanning and position tracing region are integral and the image data is detected from whole of said region capable of scanning and tracing as taught by Fahraeus into the method for implementing mouse function and scanner function alternatively in an apparatus as taught by Knee to obtain a method for implementing mouse function and scanner function alternatively wherein an image data is detected from whole of a region capable of scanning and wherein a position tracing region is an integral part of said region capable of scanning in order to reduce complexity to have both tracing and scanning sensors within a housing and share one scanning region to allow miniaturization of the mouse.

Re claim 8, Knee teaches the method wherein said step (b) includes steps of: determining whether data with regard to a predetermined line or side generated by an input device 100 are stored in a memory device and the position of said apparatus is detected from data stored in said memory device (Col. 7, lines 31 – 35; "initially take a

reference frame/(predetermined line or side) by storing the digitized values of the photo detector outputs as they appear at some time t_0.");

performing repeatedly the step of storing data with regard to the predetermined line or side generated by said input device in said memory device if the position of said apparatus cannot be detected from data stored in said memory device (Col. 7, lines 31 – 35; "initially take a reference frame/(predetermined line or side) by storing the digitized values of the photo detector outputs as they appear at some time t_0." The mouse initially takes a reference frame, and the reference frame is an essentially element of for determining the position of the mouse. Therefore, if the frame were not stored initially, it would be required to repeat the process to obtain the reference frame.);

reading out a predetermined region from the stored data to obtain an image center or the image itself or obtaining and storing X, Y coordinates of a base point through spot of the surface if the position of said apparatus can be detected from data stored in said memory device (Col. 7, lines 1 – 5; "Tracking/transition of position is accomplished by comparing a newly captured sample frame with a previously captured reference frame to ascertain the direction and amount of movement." A predetermined region of the image of the reference frame must be read in order to compare with a newly captured sample frame.);

storing said data to with regard to a predetermined line or side after data with regard to a predetermined line or side are generated by said input device, data with regard to the first predetermined line or side stored in said memory device are deleted, and the remaining stored data are moved to a direction of the first predetermined line or

side (Col. 7, lines 33 – 35; "At some later time t_1 we take a sample frame and store another set of digitized values."); and

determining the transition of position of said apparatus by obtaining an image the image itself from the stored data. (Col. 7, lines 1 – 5; "Tracking/transition of position is accomplished by comparing a newly captured sample frame with a previously captured reference frame to ascertain the direction and amount of movement.").

Re claim 9, the combined teachings of Knee and Fahraeus teach the method according to claim 7, said step (b) includes steps of: detecting spot of a surface from reading each of the images of the surface consecutively (Knee: Col. 6, lines 11 – 13; "detects/reading motion by directly imaging as an array of pixels the various particular spatial features/spot of a document/surface.") through two regions of the transition of position of said input device (Knee: Col. 5, lines 14 – 16; "The scanning mouse of the present invention will incorporate two navigation mechanisms/regions.") while the user uses the scanning function [Knee: Col. 14, lines 35 – 40; "Each of format places navigation sensor data at the first and last of the image line/using scanning function."]., and indicating the transition of position of said spot in vector by detecting the transition of position of said detected spot (Knee: Col. 7, lines 24 – 26; "provide display pointer movement information (Δx and Δy)/vector."); calculating the amount of straight line movement toward X axis direction or Y axis direction of the other end based on one end of said region of the transition of position by deducting said vector (Knee: Col. 7, lines 19 – 21; "the least difference/(deduction calculation) can be taken as an indication of the

motion between the two frames."); and calculating amount of rotation movement of said device by dividing the amount of straight line movement toward said Y axis direction by the amount of straight line movement toward said X axis direction (Knee: Col. 11, lines 33 – 35; "Each image data collection would be translated and rotated as indicated by the data/(rotation movement) from the navigation sensors.").

But not explicitly teach the calculating the amount of rotation movement by dividing the amount of straight line movement toward said Y axis direction by the amount of straight line movement toward said X axis direction.

However, in order to calculate rotation using two axis, such as X and Y, it is conventional to divide X and Y to be applied to a tangent function.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to calculate the amount of rotation movement of said device by dividing the amount of straight line movement toward said Y axis direction by the amount of straight line movement toward said X axis direction.

Re claim 10, Knee teaches the method wherein the predetermined region reading out from the data stored in said memory device is a polygon or region of a circle (Col. 6, lines 11 – 13; "detects/reading motion by directly imaging as an array of pixels the various particular spatial features/(can be any shape; polygon or region of a circle) of a document/surface.").

Re claim 11, Knee teaches the method further comprising a step of compensating said image data by a computer ("computer" Fig. 3) that shifts pointer in accordance with the information concerning the transition of position of said apparatus (Col. 1, lines 43 – 45; "coupled to the computer, where software responds to the signals to change by a Δx and a Δy the displayed position of a pointer in accordance with movement of the mouse.") or by using information with regard to the transition of position of said apparatus (Col. 13, lines 21 – 23; "In the mouse mode, the navigation data/(transition of position) from one of the sensors is sent to the mouse driver executing on the computer."), wherein said step of a computer compensating said image data includes steps of (d) initializing related variables (Col. 13, lines 37 – 40; "Using the scanning mouse, selects an appropriate programs." When a program is selected, related variables are inherently initialized to run the program.); (e) storing information concerning the transition of position of said apparatus inputted with a predetermined unit of line and said image data (Col. 13, lines 21 – 23; "In the mouse mode, the navigation data/(transition of position) from one of the sensors is <u>sent to the mouse driver</u> executing on the computer." The data must be stored once the data arrives to the driver.); (f) calculating speed of movement toward X axis direction by dividing distance moved toward X-axis direction by number of lines received, compensating image data toward X axis by compensating line compressively if said speed of movement is slow and by compensating line expansively if said movement speed is fast, compensating said image data toward Y axis direction by shifting as much as the transition of position of said image information compensated toward X axis

direction is shifted toward Y axis direction, and storing image data compensated toward X,Y axes direction (Col. 14, lines 3 – 5; "by noticing the velocities in the X and Y directions, and appropriately stretching/expansive or compressing RGB image components." The image components are compressed and stretched in both X and Y directions.); (g) determining whether the scanning is completed (Col. 13, lines 49 – 50; "When the scanning is complete, switch is returned to its mouse position."); and (h) returning to step (e) if the scanning is not completed, and completing all of the movement if the scanning is completed (Col. 13, lines 45 – 46; "wipes the scanning mouse back and forth <u>as need</u> to scan the document.").

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Knee in view of Fahraeus, as applied to claims 1, 3 and 5 - 11, and further in view of Bilbrey et al (Hereinafter "Bilbrey" US 4,543,571).

Re claim 5. the combined teachings of Knee and Fahraeus teach the apparatus according to claim 1.

But does not teach the apparatus further comprising a pad indicated with grid for improving accuracy of the movement of the mouse function or scanning function of said apparatus.

However, Bilbrey a grid pattern pad (15, Fig. 1) wherein an optical mouse is moved across the pad to detect movement.

Therefore, taking the combined teachings of Knee, Fahraeus and Bilbrey, as a whole, it would have been obvious to a person having ordinary skill in the art to incorporate the grid pad as taught by Bilbrey into the apparatus of Knee and Fahraeus to obtain an apparatus for implementing mouse and scanner function which uses a grid pad to make best of the reflected light from the light source to accurately detect the movement of the apparatus (Col. 3, lines 39 – 42).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YONG SIM whose telephone number is (571)270-1189.

The examiner can normally be reached on Monday - Friday (Alternate Fridays off) 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Y. S./
Examiner, Art Unit 2629
4/21/08

/Amr Awad/
Supervisory Patent Examiner, Art Unit 2629